

<p>2000-024406/03 A97 D25 E17 (A25 A26 E11) HENK 1998.04.22</p> <p>HENKEL KGAA *DE 19817964-A1 1998.04.22 1998-1017964(+1998DE-1017964) (1999.10.28) C11D 17/00</p> <p><b>Production of encapsulated solid particles (especially nonionic surfactants) for use in detergents for hard surfaces or for machine or manual washing-up or dishwashing liquids</b></p> <p>C2000-006277</p> <p>Addnl. Data: GASSENMEIER T, MILLHOFF J, HAERER J, NITSCH C</p>	<p>A(5-H1B, 6-AE, 12-W12B) D(11-A1A1, 11-A3A, 11-B11, 11-B19, 11-D3) E(5-E2B, 10-C4L, 10-E4G, 10-E4L4, 10-E4L5, 10-E4M3)</p> <p>plastic solidifying range is such that: (i) the solid material to be encapsulated is fluid at the softening temperature of (I) and (ii) a fatty alcohol, fatty acid, polyglycerol ester and/or polyoxyalkylenesiloxane emulsifier is added to the melt.</p> <p>An INDEPENDENT CLAIM is included for the encapsulated particles obtained as above, especially those obtained by granulating the cooled dispersion in the plastic solidifying range to give a product of size 0.2-2, especially 0.8-1.2, mm.</p> <p><u>USE</u> The encapsulated particles are used in detergents or cleansing agents for hard surfaces or for machine or manual washing-up or dishwashing liquids (claimed). They are also used to form regions of detergent or cleansing articles, such regions being formed by filling appropriately with the dispersions obtained as above and then letting the dispersions solidify.</p> <p style="text-align: right;">DE 19817964-A+</p>
<p><u>NOVELTY</u> Production method of encapsulated solid particles is characterized in that: (i) the solid material to be encapsulated is fluid at the softening temperature of encapsulant material (I); and (ii) a fatty alcohol, fatty acid, polyglycerol ester and/or polyoxyalkylenesiloxane emulsifier is added to the melt.</p> <p><u>DETAILED DESCRIPTION</u> Production method of encapsulated solid particles by cooling and working-up a dispersion of the solid material in the melt of a room temperature solid, water-insoluble encapsulant material (I) having a</p>	

<p><u>ADVANTAGE</u> The encapsulated particles use a water insoluble encapsulant and the presence of the emulsifier ensures that they are resistant to phase separation and are suited to activation at predetermined temperatures in detergent mixtures, being such that in water at up to 6°C below the melting range of (I) less than 30 wt.% of the particles are set-free after 10 minutes.</p> <p><u>EXAMPLE</u> A dispersion obtained by melting at 65°C a mixture of (by wt.) 60% paraffin (57-60°C), 33.3% Poly Tergent SLF-18B-45 (RTM : Alcohol alkoxylate of softening point 25-45°C) and 6.7% polyglycerol-12-hydroxystearate solidified on casting and retained the nonionic surfactant in-situ, whereas mixtures with the above nonionic surfactant replaced by sorbitan sesquioleate, glycerol monolaurate or PEG-30 cetyl stearyl ether (or omitted altogether) separated on cooling.</p> <p><u>TECHNOLOGY FOCUS</u> Organic Chemistry - Preferred Method: (I) has a melting range of 45-75°C and contains a paraffin wax of melting range 57-60°C. (I) forms 20-70, especially 40-50, wt.% of the encapsulated particles. The</p>	<p>material to be encapsulated is a nonionic surfactant, especially an alkoxyated alcohol, and forms 5-50, especially 20-40, wt.% of the final product. The emulsifier forms 1-25, especially 5-10, wt.% of the encapsulated particles and is an 8-22C, especially 16-18C, fatty alcohol, a 6-22C, especially 16-18C, fatty acid, a polyglycerol ester of formula (II) or a polyalkylenesiloxane of formula (III)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <math display="block">\text{HO}-\left[\text{C}-\underset{\text{H}_2}{\overset{\text{OR}^1}{\text{C}}}-\underset{\text{H}_2}{\text{C}}-\text{O}\right]_n-\text{H}</math> <p>(II)</p> </div> <div style="text-align: center;"> <math display="block">\text{H}_3\text{C}-\underset{\text{R}^1}{\overset{\text{R}^1}{\text{Si}}}-\text{O}-\left[\underset{\text{R}^1}{\overset{\text{R}^1}{\text{Si}}}-\text{O}\right]_n-\underset{\text{R}^1}{\overset{\text{R}^1}{\text{Si}}}-\text{CH}_3</math> <p>(III)</p> </div> </div> <p>In (II), R<sup>1</sup> = H or 8-22, especially 12-18, C fatty acyl residue; and n = 2-15, especially 3-10 In (III), R<sup>1</sup> = -CH<sub>3</sub> or a polyoxyethylene or polyoxypropylene group -[CH(R<sup>2</sup>)-CH<sub>2</sub>O]<sub>x</sub>H; R<sup>2</sup> = H or -CH<sub>3</sub>; x = 1-100, especially below 10; and</p> <p style="text-align: right;">DE 19817964-A+/1</p>
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<p>2000-024406/03</p> <p>n = the degree of polymerization of the silicone(10pp1958DwgNo.0/0)</p>	<p style="text-align: right;">DE 19817964-A/2</p>
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